

CHCNAV

ALPHA3D

**MOBILE MAPPING
SOLUTION**



**MAPPING &
GEOSPATIAL**



HIGH PERFORMANCE 3D MOBILE MAPPING SOLUTION

The Alpha3D provides geospatial professionals with a high-performance, vehicle-independent mobile mapping solution for capturing mass data in constantly evolving global environments. Projects are completed faster and more accurately to increase return on investment. The Alpha3D combines an advanced long-range, high-speed, precise laser scanner, a high-resolution HDR panoramic camera in combination with cutting-edge GNSS receiver and high-precision IMU. All in one compact and lightweight, yet robust instrument. All these features make Alpha3D one of the most advanced and efficient 3D mobile mapping system.

PREMIUM HIGH PERFORMANCE LASER SCANNER

Long range scanning up to 420m.

Extremely high-speed scanning of 1M points per second. High point cloud density even on high speed driving. High quality of point cloud with low range noise.

HIGH RESOLUTION 360° IMAGES

30 MP HDR panoramic camera with superb image quality.

Support fully calibrated point clouds and panorama images. You can add additional imagery sensors to get extra information whenever your application needs.

READY NOW TO ANTICIPATE FUTURE

Ready to add 2nd scanner for more density point clouds.

Provide two RS232 ports for external device connection, 2nd GNSS antenna to work on railway or water applications, and an easy-in easy-out SSD hard disk for faster data transfer.

CAPTURE DATA WITH COCAPTURE

Browser-based operation application.

Simple and intuitive, CoCapture manages the mission and automatically capture data via your own Android device browser.

VEHICLE INDEPENDENT PLATFORM

Easily mounted on different type of vehicles, trains, railway trolleys and boats.

Whatever the task is, the Alpha3D rapidly and efficiently collects high density, accurate point clouds and powerful images data, but also adds extra information from additional sensors, such as high-resolution camera, thermal camera, GPR, echo-sounder or extra profiler.

MANAGE PROJECTS WITH COPROCESS

Powerful engine support massive data processing.

Semi-automatic feature extraction information is easily exported to CAD or GIS deliverables via our SW plugins.

GET NEW REVENUE AND INCREASE ROI

Collect more data faster and boost productivity.

The combination of point clouds, high-resolution images and additional sensors, eliminates the need of returning to site for further measurements. Versatile data measurement types allow geospatial professionals to

 **ACCURATE 3D
DATA CAPTURE**



Laser Scanner
Up to 420 m



HDR Camera
30 MP HDR panoramic camera



High Connectivity
Add 2nd scanner



Independent Platform
Mounted on different type of vehicles

SPECIFICATIONS

General system performance	
Number of laser scanners	Single scanner head system, optional 2nd scanner head on additional platform
Horizontal accuracy	< 0.030 m RMS (typical)
Vertical accuracy	< 0.025 m RMS (typical)
Accuracy conditions	Without control points, open sky conditions
Control unit	Internal multi-core industrial PC, low power consumption
Field software	CoCapture, browser-based, no installation required
Control interface	BYOD (any tablet or laptop), WiFi or LAN cable connection
Data storage	Removable 2 TB SSD hard disk with USB3 interface
3rd party hardware synchronization	1x synchronization port for 2nd GNSS antenna 2x RS232 synchronization ports (NMEA support)
Mounting	Vehicle independent solution, suits for road, rail and water-based application

Laser scanner	
Laser class	1 (in accordance with IEC 60825-1:2014)
Measuring principle	Time of flight measurement, echo signal digitization, online waveform processing
Effective measurement rate ⁽¹⁾	300 kHz, 500 kHz, 750 kHz, 1 MHz
Maximum range, target reflectivity > 80% ⁽²⁾	420 m, 330 m, 270 m, 235 m
Maximum range, target reflectivity > 10% ⁽²⁾	150 m 120 m 100 m 85 m
Minimum range	1.2 m
Accuracy ⁽³⁾	5 mm
Precision ⁽⁴⁾	3 mm
Field of view	360° "full circle"
Scan rate	Up to 1 000 000 points/sec
Scan speed (selectable)	Up to 250 scans/sec

Physical	
Dimensions of instrument	51.3 x 31 x 67.2 cm 20.08" x 12.2" x 26.37"
Weight of instrument	19.2 kg
Dimensions of battery	16.5 x 12.5 x 17.5 cm 6.3" x 4.72" x 6.7"
Weight of battery	8.1 kg (depending on cells type)
Dimensions of optional roof rack extension	72 x 31 x 12 cm 28.34" x 12.2" x 4.72"
Weight of optional roof rack extension	16.6 kg

Imaging system	
Camera type	360° Spherical camera, additional adjustable external cameras as option
Number of cameras	6 sensors
CCD size	2048 x 2448, 3.45 μm pixel size
Lens	4.4 mm
Resolution	30 MP (5 MP x 6 sensors), 10 FPS JPEG compressed
Coverage	90% of full sphere
High Dynamic Range (HDR)	Cycle 4 gain and exposure presets

Positioning and orientation system	
GNSS system	Multiple GPS, GLONASS, Galileo, BeiDou, SBAS and QZSS constellation, L-Band, single and dual antenna support
IMU update rate	Standard 200 Hz (user selectable 1 to 600 Hz)
Gyro bias instability (25°C)	≤ 0.1 deg/hr, 1σ (max) ≤ 0.05 deg/hr, 1σ (typical)
Gyro bias offset (25°C)	±2 deg/hr
Gyro scale factor	≤ 600 ppm, 1σ
Gyro range	± 200 deg/sec
Angle Random Walk	≤ 0.012 deg/√hr
Accelerometer range	± 20 g
Accelerometer bias	< 0.025 mg
Accelerometer scale factor	250 ppm/°C, 1σ (max), ≤100 ppm/°C, 1σ (typical)
Position accuracy NO GNSS outage	0.010 m HRMS, 0.020 m VRMS 0.005 deg RMS pitch/roll and 0.017 deg RMS heading
Wheel sensor (DMI)	Yes, optional

Environmental	
Operating temperature	-10 °C to +40 °C
Storage temperature	-20 °C to +50 °C
IP rating	IP64
Humidity (operating)	80%, non-condensing
Maximum vehicle speed for data acquisition	110 km/h (68 mph)

Electrical	
Battery type	External battery in protected case, also support direct vehicle power source
Input voltage	24 V DC
Power consumption	Typ. 240 W
Operating time	Up to 8 hrs

All specifications are subject to change without notice.
 (1) Rounded values, selectable by measurement program. (2) Typical values for average conditions. (3) Accuracy is the degree of conformity of a measured quantity to its actual (true) value. (4) Precision is the degree to which further measurements show the same results.

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WWW.CHCNAV.COM | SALES@CHCNAV.COM

CHC Navigation Headquarter
 Shanghai Huace Navigation Technology Ltd.
 599 Gaojing Road, Building D,
 Shanghai, 201702, China ,
 +86 21 54260273

CHC Navigation Europe
 Infopark Building , Sétány 1, 1117
 Budapest, Hungary
 +36 20 235 8248 +36 20 5999 369
 info@chcnv.eu

CHC Navigation USA LLC
 16412 N 92nd Street, Suite 115,
 85 260 Scottsdale, Arizona, USA,
 +1 480 676 4306

CHC Navigation India
 409 Trade Center, Khokhra Circle,
 Maninagar East, Ahmedabad,
 Gujarat, India
 +91 90 99 98 08 02